

Listing of the Claims:

The following is a complete listing of all the claims in the application, with an indication of the status of each:

- 1 Claims 1-11. Canceled
- 1 12. (Previously presented) A sensor, comprising:
2 a transmitting antenna array having radiation lobes in each of main
3 radiation area and a secondary radiation area, where the main radiation
4 area and secondary radiation area are angularly offset relative to each
5 other; and
6 a receiving antenna array having reception lobes in each of said
7 main radiation area and said secondary radiation area, said reception
8 signals being reflected from objects present in said main reception area and
9 said secondary reception area, wherein said receiving antenna array and
10 said transmitting antenna array are positioned in a same location,
11 wherein objects present in said main radiation area and objects
12 present said secondary radiation area are sensed by said sensor.
- 1 13. (Previously presented) The sensor of claim 12 wherein said
2 transmitting antenna array forms a single squinting antenna.
- 1 14. (Previously Presented) The sensor of claim 12 wherein said receiving
2 antenna array is a single antenna.
- 1 15. (Previously Presented) The sensor of claim 12 wherein said receiving
2 antenna array includes at least two antennas one of which receives
3 reception signals from said main radiation area, and the other of which
4 receives signals from the secondary reception area.
- 1 16. (Previously Presented) The sensor of claim 12 wherein said radiation
2 signals transmitted by said transmitting antenna array in said main

3 radiation area cover an area at least four times as large as said secondary
4 radiation area.

1 17. (Previously Presented) The sensor of claim 12 wherein said main
2 radiation area is located behind a car and wherein said secondary radiation
3 area is located beside said car.

1 18. (Currently amended). A sensor, comprising:

2 a planar transmitting antenna including a transmitting antenna array
3 which has a plane surface in which antenna pads of said transmitting
4 antenna array are located so as to establish an irradiation surface and which
5 having radiation lobes in each of a main radiation area and a secondary
6 radiation area, where the main radiation area and secondary radiation area
7 are angularly offset relative to each other;

8 a receiving antenna array having reception lobes in each of said
9 main radiation area and said secondary radiation area, said reception
10 signals being reflected from objects which may be present in either said
11 main radiation area or said secondary radiation area; and

12 a control means for tuning the transmitting array, wherein the
13 transmitting antenna array is tuned through said control means so as to
14 direct the main radiation area to an acute angle related to a perpendicular
15 of said irradiation surface, thereby enhancing said secondary radiation area,
16 and wherein objects present in either said main radiation area or said
17 secondary radiation area are sensed by said sensor.

1 19. (Previously presented) The sensor of claim 18 wherein said main
2 radiation area has a central axis and the secondary radiation area has a
3 central axis, and wherein between the two central axes an angle of greater
4 than 45° is included.

1 20. (Previously Presented) The sensor of claim 19 wherein the angle is 90°
2 or above.

1 21. (Previously Presented) The sensor of claim 18 wherein the acute angle
2 is approximately 20°.

1 22. (Currently amended) An object detection system for a vehicle,
2 comprising:

3 a sensor positioned at a front or rear of a vehicle for detecting
4 objects located in front of or behind said vehicle and to at least one side of
5 said vehicle, said sensor including

6 a planar transmitting antenna including a transmitting
7 antenna array which has a plane surface in which antenna pads of said
8 transmitting antenna array are located so as to establish an irradiation
9 surface and having radiation lobes in each of a main radiation area and a
10 secondary radiation area, where the main radiation are and secondary
11 radiation area are angularly offset relative to each other;

12 a receiving antenna array having reception lobes in each of
13 main radiation area and said secondary radiation area, said reception
14 signals being reflected from objects which may be present in either said
15 main radiation area or said secondary radiation area; and

16 a control means for tuning the transmitting array, wherein
17 the transmitting antenna array is tuned through said control means so as to
18 direct the main radiation area to an acute angle related to a perpendicular
19 of said irradiation surface, thereby enhancing said secondary radiation area,
20 and wherein objects present in either said main radiation area or said
21 secondary radiation area are sensed by said sensor, and

22 wherein said sensor is mounted on said vehicle so that the acute
23 angle of the main radiation area is compensated with respect to a
24 longitudinal axis passing through a front and a rear of said vehicle.

1 23. (Previously presented) The object detection system of claim 22
2 wherein said main radiation area has a central axis and the secondary
3 radiation area has a central axis, and wherein between the two central axes
4 an angle of greater than 45° is included.

1 24. (Previously Presented) The object detection system of claim 23
2 wherein the angle is 90° or above.

1 25. (Previously Presented) The object detection system of claim 18
2 wherein the acute angle is approximately 20° .